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Corrigendum

Corrigendum to "The Clark–Ocone formula for vector valued Wiener functionals" [J. Funct. Anal. 229 (2005) 143–154]

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In this paper we considered the extension of the Clark–Ocone formula for a random variable defined on an abstract Wiener space (W, H, μ) and taking values in a Banach space (denoted there either B or Y). The main result appears in Theorem 3.4. Unfortunately, as first pointed out to us by J. Maas and J. van Neerven, the dual predictable projection $\mathbf{\Pi}$ introduced in Definition 3.1(iii) via the characterization (3.1) does *not* define a random operator in $L^2(\mu; L(H, Y))$ as claimed, but rather an element of the larger space $L(H, L^2(\mu; Y))$. Consequently the right-hand side of (3.6) in the main result is ill defined.

We have been unable to overcome this difficulty in a meaningful way. It should be pointed out that a Clark–Ocone formula was recently obtained in [1] for random variables on a classical cylindrical Wiener space taking values in a UMD Banach space, in which δ can be explicitly defined à la Itô on adapted processes. Our work, however, was different in spirit and aimed to weaken the restriction on the Banach space by using the extended version of δ introduced in [2]. While it is possible to provide an even weaker interpretation of (3.6) in which δ is extended to suitable elements of $L(H, L^2(\mu; Y))$, the result would have amounted to little more than the collection of classical Clark–Ocone formulae for the scalar random variables $\{\langle v, b^*\rangle, b^* \in B^*\}$.

The main result, Theorem 3.4, is thus considerably weakened; it remains true (a) assuming that B^{**} has the Radon–Nikodym (RNP) property with respect to μ, and (b) for B-valued random variables v for which one can verify that $\mathbf{\Pi}\nabla v \in L(H, L^2(\mu; Y))$. The need for the additional RNP condition (a) derives from an error, also brought to our attention by J. Maas and J. van Neerven, in the proof of Proposition 3.14 of [2] (cited here as Lemma 2.3), which has been corrected in [3] under the RNP assumption.

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Section 4 is not affected by the difficulties described above.

References

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